Amendments to the Specification

Please replace the paragraph on Page 2, lines 2 - 10 with the following marked-up replacement paragraph:

-- The Meta Object Facility ("MOF") Specification (which is hereby incorporated herein by reference) defines a simple meta-metamodel with sufficient semantics to describe metamodels in various domains. MOF is a standard of the Object Management Group. (Version 1.3 of the MOF Specification, dated April 3, 2000, is available on the Internet from the Object Management Group on the Internet at location http://www.omg.org/technology/ documents/formal/meta.htm.) The importance of having a meta-metamodel framework is to allow for the integration of metamodels across domains, which is necessary for integrating tools and applications across the life cycle using common semantics. --

Please replace the paragraph that begins on Page 2, line 11 and carries over to Page 3, line 1 with the following marked-up replacement paragraph:

-- The MOF specification states that an association defines a classification over a set of links, through a relationship between Classifiers. A "link", in this statement, is an instance of an association denoting a connection between object instances of the Classifiers of the Association. The definition of an association requires two "AssociationEnds". Figure 1A shows the Unified Modeling Language ("UML") representation of an Association, and Figure 1B shows the UML representation of an AssociationEnd, according to the MOF Association structure. (UML is a standard of the Object Management Group, and is described in "UML Toolkit", H. Eriksson, M.

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Penker, published by John Wiley and Sons, 1997. Refer to this publication, or to the UML Specification, for a description of the notation used in Figs. 1A and 1B. Version 1.3 of the UML Specification, dated March 1, 2000, is available on the Internet from the Object Management Group at location http://www.omg.org/technology/documents/formal/ unified_modeling_language.htm.) --

Please replace the paragraph that begins on Page 4, line 9 and carries over to Page 5, line 1 with the following marked-up replacement paragraph:

-- A structured notation known as the XML Metadata Interchange, or "XMI", has been defined as a way to exchange metadata information, such as descriptions of data models. XMI is an extension of the Extensible Markup Language, or "XML", which is a standard from the World Wide Web Consortium ("W3C"). (See "Extensible Markup Language (XML) 1.0", W3C Recommendation Feb. 1998, 2nd edition 6 October 2000, which is available on the Internet from the W3C, at http://www.w3.org/XML, for more information on XML. XMI is a standard of the Object Management Group. Version 1.1 of the XMI Specification, dated Nov. 11, 2000, is available on the Internet at the Web page of the Object Management Group, at location http://www.omg.org/technology/documents/formal/ xml_metadata_interchange.htm) Fig. 9 provides an XMI document containing a metadata specification of the Department and Employee class and link information represented in Fig. 2. Note that this XMI document specifies both the "employees" association end (shown at 220 in Fig. 2), which has a multiplicity of zero to many, and the "department" end (shown at 210 in Fig.

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2), which has a multiplicity of one to one. (See elements 920 and 930, respectively.) --

Please replace the paragraph that begins on Page 18, line 16 and carries over to Page 19, line 19 with the following marked-up replacement paragraph:

-- This automatic maintenance of inverse association end values is in contrast to techniques of the prior art, in which each end of the association must be separately modified. A simple example will be used to illustrate how this process of maintaining inverse values using the LinkHelper implementation of the present invention operates. Fig. 2 showed a simple association between a Department class and an Employee class that is a navigable inverse. The XMI document 900 in Fig. 9 shows the description of each AssociationEnd corresponding to the UML representation in Fig. 2. (In particular, see the zero-to-many employees end definition 920 and the one-to-one department end definition 930 within the association ends element 910.) For this example, suppose an instance of Department is named "Clothing" and an instance of Employee is named "John Smith", and suppose that this employee's department is to be set to Clothing. This is an example of a single association end, corresponding to navigating the association 215 in Fig. 2 in the direction of arrowhead 230. As the department for employee John Smith is set to the Clothing department, the present invention will automatically remove John Smith from the list of employees for his current department (if he already has a link as an employee of some other department), and will then add him to the list of employees held by the Clothing department, thereby maintaining the inverse (employee) association end. This automatic link maintenance enforces the referential integrity constraints for the data model while

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ensuring that an association and its inverse are properly synchronized. --

Please replace the paragraph that begins on Page 22, line 20 and carries over to Page 23, line 4 with the following marked-up replacement paragraph:

-- Next, the employee's department (inverse) association is set to null in Block 825, and this inverse association end for Jane Doe will then be set to point to the new department (i.e. Clothing) in Block [[830]] 815, thereby completing the process. Thus, the resulting XMI document 1400 in Fig. 14 for this example shows that the Clothing department now has links to two employees (see 1410 and 1420), while the Shoes department has no links to employees (see 1430). --